

CLAIMS

What is claimed is:

- 1 1. A data communication system comprising:
 - 2 a headend for generating a transmission signal;
 - 3 a plurality of distribution hubs operationally coupled to said headend;
 - 4 a plurality of fiber nodes, each of said fiber nodes being operationally coupled to
 - 5 said distribution hub by a transmission cable and a return cable, said transmission cable
 - 6 coupled to each fiber node providing said transmission signal to said fiber node;
 - 7 a plurality of service lines extending from each of said fiber nodes to
 - 8 operationally couple a plurality of subscriber sites to each of said fiber nodes, and to
 - 9 provide said transmission signal received from said headend at each of said fiber nodes to
 - 10 said subscriber sites; and
 - 11 a plurality of cable modem termination packages operationally coupled to one of
 - 12 said plurality of distribution hubs, one of said plurality of fiber nodes, or one of said
 - 13 plurality of service lines, said cable modem termination packages located downstream
 - 14 from said headend.
- 1 2. The system of claim 1, wherein said transmission signal includes a cable television (CATV) signal.

1 3. The system of claim 1, wherein said cable modem termination packages are
2 located at said distribution hubs.

1 4. The system of claim 1, wherein said cable modem termination packages are
2 located at said fiber nodes.

1 5. The system of claim 1, wherein said cable modem termination packages are
2 located at said subscriber sites.

1 6. The system of claim 1, wherein said fiber nodes further include:
2 an upstream connection operationally connected, by a plurality of first data
3 carrying cables, to a first distribution point; and
4 a downstream connection operationally connected by a plurality of second data
5 carrying cables, to a second distribution point.

1 7. The system of claim 6, wherein said plurality of first data carrying cables are fiber
2 optic cables.

1 8. The system of claim 6, wherein said plurality of second data carrying cables are
2 fiber optic cables.

1 9. The system of claim 6, wherein said plurality of second data carrying cables are
2 co-axial cables.

1 10. The system of claim 6, wherein said first distribution point is a distribution hub.

1 11. The system of claim 6, wherein said first distribution point is a fiber node.

1 12. The system of claim 6, wherein said second distribution point is a fiber node.

1 13. The system of claim 6, wherein said second distribution point is a subscriber site.

1 14. The system of claim 6, wherein said first distribution point is a distribution hub.

1 15. A method of employing a data communication system, said method comprising:
2 generating a transmission signal at a headend;
3 operationally coupling a plurality of distribution hubs to said headend;
4 operationally coupling a plurality of fiber nodes to said distribution hub by a
5 transmission cable and a return cable, said transmission cable coupled to each fiber node
6 providing said transmission signal to said fiber node;
7 providing a plurality of service lines extending from each of said fiber nodes to
8 operationally couple a plurality of subscriber sites to each of said fiber nodes, and
9 providing said transmission signal received from said headend at each of said fiber nodes
10 to said subscriber sites; and
11 operationally coupling a plurality of cable modem termination packages to said
12 data communications system, said cable modem termination packages located
13 downstream from said headend.

1 16. The method of claim 15, wherein said step of generating a transmission signal
2 includes generating a cable television (CATV) signal.

1 17. The method of claim 15, wherein said step of coupling said cable modem
2 termination packages includes locating said cable modem termination packages at said
3 distribution hubs.

1 18. The method of claim 15, wherein said step of coupling said cable modem
2 termination packages includes locating said cable modem termination packages at said
3 fiber nodes.

1 19. The method of claim 15, wherein said step of coupling said cable modem
2 termination packages includes locating said cable modem termination packages at said
3 subscriber sites.

1 20. The method of claim 15, wherein said step of operationally coupling a plurality
2 of fiber nodes to said distribution hub further includes:

3 operationally connecting an upstream connection of said fiber node, with a
4 plurality of first data carrying cables, to a first distribution point; and
5 operationally connecting a downstream connection of said fiber node with a
6 plurality of second data carrying cables, to a second distribution point.

1 21. The method of claim 20, wherein said plurality of first data carrying cables are
2 fiber optic cables.

1 22. The method of claim 20, wherein said plurality of second data carrying cables are
2 fiber optic cables.

1 23. The method of claim 20, wherein said plurality of second data carrying cables are
2 co-axial cables.

1 24. The method of claim 20, wherein said first distribution point is a distribution hub.

1 25. The method of claim 20, wherein said first distribution point is a fiber node.

1 26. The method of claim 20, wherein said second distribution point is a fiber node.

1 27. The method of claim 20, wherein said second distribution point is a subscriber
2 site.

1 28. The method of claim 20, wherein said first distribution point is a distribution hub.

1 29. A cable modem termination package comprising:
2 a demodulator circuit;
3 a multiplexor circuit;
4 a demultiplexor circuit;
5 at least one optical transmitter; and
6 at least one optical receiver.

1 30. The cable modem termination package of claim 29, further comprising connection
2 devices for operationally connecting said cable termination package to a data
3 communication system.

1 31. The package of claim 30, wherein said connection devices include coaxial cable
2 connection devices.

1 32. The package of claim 30, wherein said connection devices include fiber optic
2 cable connection devices.

1 33. The package of claim 29, wherein said multiplexor circuit is a time division
2 multiplexor circuit.

1 34. The package of claim 29, wherein said multiplexor circuit is a wavelength
2 division multiplexor circuit.

1 35. The package of claim 29, wherein said demultiplexor circuit is a time division
2 demultiplexor circuit.

1 36. The package of claim 29, wherein said demultiplexor circuit is a wavelength
2 division demultiplexor circuit.